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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,291	09/26/2003	Miwa Kozawa	031181	6427

38834 7590 03/09/2006

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EXAMINER
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CHACKO DAVIS, DABORAH

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/670,291

Applicant(s)

KOZAWA ET AL.

Examiner

Daborah Chacko-Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 13-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-8, 13-20, are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent Application Publication No. 2003/0157801 (Kozawa et al).

Kozawa, in the abstract, and in [0047], discloses a resist pattern thickening material comprising a resin and a surfactant (claim 1). Kozawa, in [0045], discloses that the resist pattern thickening material is water-soluble (claim 2). Kozawa, in [0092], [0093], [0094], [0095], and [0096], discloses that the surfactant in the resist material includes a non-ionic surfactant such as polyoxyethylene-polyoxypropylene, a cationic surfactant such as alkyl cationic surfactant, and amine oxide surfactant and the like (claims 3-4). Kozawa, in [0050], discloses that the resin is water-soluble (claim 5). Kozawa, in [0052], discloses that the water-soluble resin in the resist pattern thickening material includes polyvinyl alcohol, polyvinyl acetal and the like (claim 6). Kozawa in [0048], [0056], and [0069], discloses that resin in the resist pattern thickening material has a cyclic structure that is water-soluble, wherein the cyclic structure includes an aromatic compound, a heterocyclic compound and the like (claims 7-8). Kozawa, in [0047], [0099], and [0100], discloses that the resist pattern thickening material includes

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a resin, a surfactant, an organic solvent such as a cyclic ester organic solvent (claims 13-14). Kozawa, in [0016], [0047], [0123], [0124], [0125], [0169], and [0170], discloses manufacturing a semiconductor device comprising a fine resist pattern (resist pattern to be thickened, reference 3 of figure 1A) formed on the substrate, applying a resist pattern thickening material (reference 1 of figure 1A) on to the surface of the resist pattern (reference 3 of figure 1A), wherein the resist pattern thickening material (reference 1) comprises a resin and a surfactant, and said resist pattern thickening material thickens the resist pattern (reference 3) by mixing (penetration, crosslinking by permeation) (see reference 10a of 1B), performing a developing processing on the coated resist pattern thickening material (reference 1 of figures 1A through 1C) such that the part of the resist pattern thickening material that is not intermixed with the resist pattern to be thickened (reference 3 of figure 1A) is dissolved and removed to form a resist pattern, and patterning the underlying layers on the substrate by performing an etching process using the resist pattern as the mask (claims 15-19). Kozawa, in [0119], and [0120], discloses that the resist pattern to be thickened is a novolac resist (claim 20).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1-3, 5-8, and 13-14, are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. 6,,319,853 (Ishibashi et al).

Ishibashi, in the abstract, in col 3, lines 14-55, in col 20, lines 1-67, discloses a resist pattern thickening material comprising a water-soluble polyvinyl acetal resin, a surfactant, said resin having a cyclic structure, and said cyclic structure including an aromatic group, and an organic solvent such as an alcohol solvent (claims 1-3, 5-8, and 13-14).

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-8, 13-20, have been considered but are moot in view of the new ground(s) of rejection. The 35 U. S. C. 101 statutory double patenting rejection made in the previous office action (paper no. 0928) has been withdrawn because the claims in the copending application do not have the same scope as the amended claims.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (571) 272-1380. The examiner can normally be reached on M-F 9:30 - 6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dcd



March 6, 2006.



**JOHN A. MCPHERSON**  
**PRIMARY EXAMINER**